

REMARKS/ARGUMENTS

Claims 1-2 and 4-25 remain pending in the instant application. Claims 12-19 and 21-25 are withdrawn from consideration pursuant to Examiner's Restriction Requirement and Applicant's election. Favorable reconsideration a is kindly requested.

Amendments to the Claims

As amended above, claim 1 incorporates the subject matter of claim 3, previously dependent from claim 1. Claim 3 is cancelled, without disclaimer or prejudice. Additionally, claim 1 is amended to recite "passing the residual gases in countercurrent through a hot slag channel...". This feature is fully supported in the original specification as filed, for example at p. 8, line 36 – p. 9, line 15, among other places. No new matter has been added. The claims are also amended as discussed further below.

Rejection under 35 U.S.C. § 112

Claims 1-11 and 20 are rejected under 35 U.S.C. § 112, second paragraph, being indefinite. Specifically, the Office Action cites a lack of antecedent basis in "the H₂S-containing vapors" recited in claim 1, and also in "the SO₂" recited in claim 4.

Independent claim 1 is amended above to recite "feeding a granule/water mixture that was formed during granulation and combustion flue gas including H₂S-containing vapors" (markup per 37 C.F.R. § 1.121) in order to provide antecedent basis for "the H₂S-containing vapors" recited later in the claim. This amendment is supported in the original specification, for example at p. 1, lines 22-26, among other places. Applicant respectfully submits that the rejection of claim 1 has been obviated by this amendment, and kindly requests favorable reconsideration and withdrawal.

Claim 4 is amended above to recite "precipitating ~~the~~ SO₂ formed from the H₂S-containing vapors." (markup per 37 C.F.R. § 1.121) No new matter has been added by this amendment. Applicant respectfully submits that the rejection of claim 4 has been obviated, and kindly requests favorable reconsideration and withdrawal.

Rejection under 35 U.S.C. § 103

Claims 1-11 and 20 are rejected under 35 U.S.C. § 103(a), as obvious over U.S. Patent No. 4,758,260 to Geropp, *et al.* (“Geropp”) in view of Schingnitz, *et al.* (“Schingnitz”) and U.S. Patent Application No. 2002/0015675 by Watson, *et al.* (“Watson”). Applicant respectfully traverses the rejection, for at least the following reasons.

As amended above, independent claim 1 recites

A process for granulating slag from a blast furnace or a
smelting reduction plant, comprising...

...
after the residual gases have been discharged from the
condensation space, passing the residual gases in countercurrent
through a hot slag channel, thereby burning H₂S to form SO₂.

With respect to similar language previously recited in claim 3, the Office Action avers that this is present in Geropp, stating “it is considered the residual gasses are discharged from condensation space in a direction opposite to the slag and cooled to be precipitated along with water to be held into a water recycle line...” (Office Action, p. 5). Applicant respectfully disagrees.

Geropp Fig. 1 illustrates “The condenser 9 has a top end 15 to which a recycle line 14 is connected an which recycles the residual gas from the condenser 9 back to injector 4.” (Geropp, Col. 3, lines 48-50). Regardless of the “direction” of the gasses, there is no disclosure of any passing the residual gasses in countercurrent to the hot slag. Moreover, and contrary to claim 1 as presently amended, there is no teaching or suggestion in Geropp of passing residual gasses in countercurrent through a hot slag channel. By contrast, Geropp discloses that any residual gasses are recycled back to the injector (4), which is downstream of the slag runner (2) (Col. 3, lines 13-14).

This deficiency of Geropp is not ameliorated by the proposed combination with Schingnitz or Watson. The Office Action offers Schingnitz as teaching granulating slag (“molten slag is produced in a reaction chamber containing gases that are cooled with water to form granules” Office Action, p. 4, citations omitted). “Schingnitz, however, is silent as to an explicit teaching of burning...” (*id.*, emphasis added). On the other hand, the Office Action proposes that further combination with Watson provides “hydrogen sulfide is fed to a burner in a furnace to form sulfur vapor...” (*id.*) Applicant notes that Watson requires a furnace (2) and a burner (4), both of which are obviated according to the method of claim 1.

Therefore, even presuming that Schingnitz and Watson teach all that is attributed to them, and further that there is some apparent reason to combine the references as proposed in the Office Action, neither Schingnitz nor Watson cure the deficiency of Geropp in that none of the references teaches or suggests passing the residual gases in countercurrent through a hot slag channel, as recited in claim 1. It is well settled that to establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). Accordingly, these reference, taken singly or in combination, do not teach or suggest all recited claim features. Therefore, Applicant respectfully submits that claim 1 is patentably distinguished over Geropp, Schingnitz, and/or Watson, singly or in combination.

Dependent claims 2, 4-11 and 20 each depend, either directly or indirectly, from independent claim 1. These dependent claims are each separately patentable, however in the interest of brevity, they are offered as patentable for at least the same reasons as their underlying independent base claim 1, the features of which are incorporated by reference. Therefore, Applicant respectfully submits that the rejection has been obviated, and kindly requests favorable reconsideration and withdrawal.

Conclusion

In light of the foregoing, Applicant respectfully submits that the application is in condition for allowance. Early and favorable consideration of the present application is earnestly solicited.

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Respectfully submitted,



Robert C. Faber

Registration No.: 24,322

OSTROLENK, FABER, GERB & SOFFEN, LLP

1180 Avenue of the Americas

New York, New York 10036-8403

Telephone: (212) 382-0700